UNITED NATIONS

Framework Convention on Climate Change

Distr.
GENERAL

FCCC/AGBM/1996/6
21 May 1996

Original: ENGLISH

AD HOC GROUP ON THE BERLIN MANDATE
Fourth session
Geneva, 8-19 July 1996
Items 3 (a), 3 (b) and 5 of the provisional agenda

POSSIBLE FEATURES OF A PROTOCOL OR ANOTHER LEGAL INSTRUMENT

Review of relevant conventions and other legal instruments

Note by the secretariat

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I. INTRODUCTION

A. Mandate

1. At its second session, the Ad Hoc Group on the Berlin Mandate (AGBM) requested the secretariat "to prepare a review of existing relevant Conventions." The AGBM specified that "the review should cover the nature of their commitments, common but differentiated responsibilities of the Parties, institutional arrangements and linkages between the conventions and their protocols or any other legal instruments, and possible regional parameters for consideration by the AGBM at its fourth session" (FCCC/AGBM/1995/7, para. 52).

B. Scope of the note

2. Pursuant to the above mandate, this note reviews existing conventions with provisions that may be relevant to the work of the AGBM. A list of the instruments that were consulted is given in the annex to this note. Most of these instruments address environmental issues, but agreements in other fields were also examined.

3. To be as useful to the AGBM as possible, the note focuses on issues currently under discussion in the AGBM. In particular, it discusses examples of:

(a) Commitments relating to:

(i) Policies and measures, and
(ii) Quantified emission limitation and reduction objectives within specified time-frames (QELROs);

(b) Means of differentiating the responsibilities of the Parties to reflect differences in starting points, national circumstances, and so forth;

(c) Institutional arrangements for a protocol or another legal instrument; and

(d) Regional approaches.

4. The term "agreement" is used in this note to refer to the range of international legal instruments, including conventions, protocols, amendments and annexes. The *Vienna Convention on the Law of Treaties* does not distinguish between different types of legal agreements, and the terminology used to characterize an agreement (convention, protocol, etc.) does not have any significance as a matter of treaty law.

C. Possible action by the Ad Hoc Group on the Berlin Mandate

5. The agreements discussed in this note illustrate some of the options available to the AGBM in developing a protocol or another legal instrument. The note does not indicate any particular actions that the AGBM must take; it merely indicates possible approaches that the AGBM may wish to consider. Further, it indicates that, based on the examples found in other agreements, Parties appear to have considerable flexibility in deciding on approaches that meet their needs.

6. The AGBM may wish to use this review to help identify and narrow the options for policies and measures, QELROs and the legal and institutional features of a protocol or another legal instrument. The AGBM may also wish to conclude that, regardless of which of these approaches is used, the principle of institutional economy indicates that the secretariat, the subsidiary bodies and the communication and review process of the Convention could be used to support a protocol or another legal instrument. Consideration may also be given to using the COP of the Convention as the meeting of the Parties to a protocol or another legal instrument and to using a consolidated budgeting system.

II. TYPES OF LEGAL INSTRUMENTS

7. The review of relevant conventions illustrates the wide variety of approaches that may be used to supplement or extend an existing legal agreement such as the *United Nations Framework Convention on Climate Change (UNFCCC)*.

8. An amendment directly modifies the text of an existing legal instrument. Examples of amendments include the *London* and *Copenhagen Amendments to the Montreal Protocol on Substances that Deplete the Ozone Layer*.

9. A protocol may be open only to States that are party to another agreement and, in that sense, be a subsidiary agreement of the parent agreement. Examples include the *Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol)*, which is supplemental to the *Vienna Convention for the Protection of the Ozone Layer*; the *Antarctic Protocol on Environmental Protection*, which is supplemental to the *Antarctic Treaty*; and the protocols to the various *United Nations Environment Programme (UNEP) Regional Seas Conventions*. Generally, these protocols build on the parent agreement through the elaboration of additional (or more specific) commitments and institutional arrangements. The protocols to the *UNEP Regional Seas Conventions*, for example, address particular problems in greater detail, such as ocean dumping, the protection of special areas, and emergency response to oil spills. Similarly, the protocols to the *Convention on Long-Range Transboundary Air Pollution (LRTAP)* have elaborated commitments regarding specific

pollutants (sulphur, nitrogen oxides and volatile organic compounds) and created additional institutional arrangements.[1]

10. A protocol may be limited to a particular group or category of States, rather than be open to any party to the parent convention. For example, the *1971 Protocol Relating to Trade Negotiations among Developing Countries*, which was adopted in the context of the *General Agreement on Tariffs and Trade (GATT)* 1947, is open only to developing countries, and provides for the negotiation of trade preferences among participating States.[2]

11. On the other hand, a legal instrument (also sometimes styled a "protocol") may be adopted that addresses the same subject area as an existing agreement, but is open for signature and ratification by any State, not merely the parties to the existing agreement. Examples of such independent legal instruments include the *1967 Protocol Relating to the Status of Refugees*, which extends to additional categories of persons the protections set forth in the *1951 Refugee Convention*, the *1989 Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks (Madrid Protocol)*[3] and the *Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973*.

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[1]In contrast to *LRTAP*, which has used protocols to address specific types of pollution, a convention may use "annexes". For example, the *International Convention for the Prevention of Pollution from Ships*, as modified by the Protocol of 1978 relating thereto *(MARPOL 73/78)* sets forth detailed regulations for the prevention of specific types of pollution (for example, oil, noxious liquid substances in bulk, sewage and garbage) in five annexes, three of which are optional. If the Parties to *MARPOL* wish to address an additional source of pollution (for example, air pollution from ships), they may do so, as one option, by adopting a new annex through an amendment procedure specified in *MARPOL* (article 16(5)), rather than by adopting a separate protocol. Unlike *MARPOL*, the *UNFCCC* limits "annexes" to "lists, forms and any other material of a descriptive nature that is of a scientific, technical, procedural or administrative character" (article 16.1).

[2]The negotiation which eventually led to the conclusion of the protocol was initiated by the GATT Trade Negotiations Committee of Developing Countries, established in 1967, in the context of the Kennedy Round. The Protocol is open to all developing countries. Currently, thirteen States are Parties, including Bangladesh, Brazil, Chile, Egypt, Israel, Mexico, Pakistan, Peru, the Republic of Korea, Romania, Tunisia, Turkey and Uruguay. Decisions about whether a State may accede to the Protocol are made by the Protocol Parties themselves.

[3]Only a State Party to the *Paris Convention for the Protection of Industrial Property* is eligible to become party to the *Madrid Agreement* or *Madrid Protocol*.

12. A protocol or another legal instrument may to varying degrees be self-contained or may reference provisions in another agreement. The *Montreal Protocol* is largely self-contained - for example, it creates its own meeting of the parties, financial mechanism and non-compliance procedure. In contrast, the *Refugee Protocol*, although an autonomous legal instrument, incorporates by reference most of the substantive provisions of the *Refugee Convention*.[4] Similarly, the *Madrid Protocol* makes use of the institutional arrangements provided for in the *Madrid Agreement*, even though its members are not necessarily party to the *Madrid Agreement* (see paragraphs 52 and 55 below).

III. NATURE OF COMMITMENTS

A. Legal status

13. Legal instruments such as conventions, protocols and amendments may include (a) mandatory requirements and/or (b) "soft" provisions of a recommendatory nature.

14. Mandatory requirements contained in other agreements include QELROs and/or specific policies and measures. For example:

- The national limitations on the consumption and production of ozone-depleting substances set forth in the *Montreal Protocol*, as amended;
- The emissions reductions mandated by the 1985 and 1994 *Sulphur Protocols* to *LRTAP*;
- The equipment, design and operational standards for ships set forth in *MARPOL 73/78*; and
- The permitting system mandated by the *1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention)*.

15. In addition to mandatory requirements, some annexes to legal instruments include provisions that, by their terms, are not mandatory. For example, the Technical Annex to the *1988 Protocol to LRTAP Concerning the Control of Emissions of Nitrogen Oxides or Their Transboundary Fluxes (NO_x Protocol)* is described as "recommendatory in character" (article 10). The Annex states that "its aim is to provide guidance to Parties in identifying best available technologies which are economically feasible" (Technical Annex, paragraph 3). Both the *1991 Protocol to LRTAP Concerning the Control of Emissions of Volatile Organic Compounds or Their Transboundary Fluxes (VOC Protocol)* and the *1994 Sulphur Protocol* contain similar Annexes (*VOC Protocol* Annexes II-IV; *1994 Sulphur Protocol* Annexes I and IV). These annexes include lengthy discussions of the various general options for limiting

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[4]Article 1 of the *Refugee Protocol* provides, "The States Parties to the present Protocol undertake to apply articles 2 to 34 inclusive of the [Refugee] Convention to refugees as hereinafter defined."

emissions, with more specific discussions by sector of the main emissions sources and possible controls measures (including best available technologies).

16. Similarly, some conventions set forth a menu of options, allowing each party a choice about which alternative approaches to adopt. For example, the *Paris Convention for the Prevention of Marine Pollution from Land-Based Sources (Paris Convention)* requires States to implement programmes and measures for the elimination of pollution by certain specified substances, including, as appropriate, specific regulations or standards (article 4). But the Convention allows States the option of choosing among four alternative regulatory approaches. The regulations or standards adopted in fulfilment of article 4 may govern environmental quality, discharges into the maritime area, the composition of substances and products, or the use of substances and products.

17. The *VOC Protocol* and the *1994 Sulphur Protocol to LRTAP* illustrate that both mandatory and recommendatory approaches may be used in the same legal instrument. The *VOC Protocol* specifically provides that "Annex I is mandatory while Annexes II, III and IV are recommendatory" (article 10). Similarly, the *1994 Sulphur Protocol* states that Annex IV is intended to provide "guidance" to the Parties in identifying sulphur control options and technologies (article 2.4). It further provides that "the choice of the control measures and technologies for any particular case will depend on a number of factors, including current legislation and regulatory provisions and, in particular, control technology requirements, primary energy patterns, industrial infrastructure, economic circumstances and specific in-plant conditions" (Annex IV, paragraph I.4). In contrast, Annex V of the *1994 Sulphur Protocol* specifies emission limit values for major stationary combustion sources and the sulphur content of gas oil, which Parties are required to apply as a minimum (article 2.5).

18. Rather than specifying particular obligations, some conventions establish a decision-making process by which the parties may adopt obligations in the future. For example:

- The *International Convention for the Regulation of Whaling (Whaling Convention)* authorizes the International Whaling Commission to adopt binding regulations on certain matters, including protected and unprotected species, open and closed seasons, open and closed waters, types and specifications of gear and apparatus, and methods of measurement *(Whaling Convention*, article V). The regulations are set forth in a Schedule to the Convention, which may be amended by a three-quarters majority vote (article III(2)). Regulations become binding on all Parties except those that object within a given time period (articleV(3));

- The *Paris Convention* authorizes the Paris Commission to adopt programs and measures for the reduction of land-based sources of marine pollution (article 16(d)). Programmes and measures must be adopted by unanimity or, should

that not be attainable, by a three-quarters majority vote, and are legally binding on all Parties that voted for them (article 18.3);

- The *Montreal Protocol* establishes an adjustment procedure by which the Parties may change the production and consumption limits for controlled substances. Adjustments require a two-thirds majority vote, including a majority of both developing and developed country Parties (article 2.9).

19. The choice between mandatory and recommendatory provisions may involve several considerations, including:

- acceptability to the parties
- specificity of commitments
- effectiveness in achieving the objective of the convention
- the need for monitoring, review and consultative or compliance procedures.

B. Policies and measures

20. International instruments specify particular policies and measures in considerable detail or leave to the judgment of parties which particular policies and measures to use. The following paragraphs describe examples of different types of policies and measures.

21. Permitting/licensing systems. A number of agreements require parties to establish permitting systems, which often are specified in considerable detail:

- The *London Convention* requires Parties to establish a permitting system to regulate the ocean dumping of wastes. The basic elements of this permitting system are specified in the Convention, including lists of those wastes whose dumping must be prohibited (the "black list"), and wastes whose dumping requires a prior special permit (the "grey list"). The lists are set forth in annexes to the Convention, which may be amended by a two-thirds majority vote of the Parties (article 15);

- The *1973 Convention on International Trade in Endangered Species (CITES)* requires States to establish a permitting system to regulate trade in species listed in one of the appendices to the Convention.

22. Emissions standards. Conventions may specify emissions limitations directly or may establish a more general standard that each party must apply to set specific limits:

- The *1994 Sulphur Protocol* sets forth specific "emission and sulphur content limit values" for major stationary combustion sources (article 2.5);

- Similarly, *MARPOL 73/78* sets maximum allowable discharges into the sea of oil from vessels of various sizes and under strict operating conditions (which, for example, sets maximum allowable discharges into the sea of oil vessels of various sizes and under strict operating conditions) *(MARPOL 73/78* Annex I, Reg. 9(1));

- In contrast, the *1988 NO_x Protocol* requires States to "apply national emissions standards . . . based on the best available technologies which are economically feasible" to, *inter alia*, major new stationary sources and new mobile sources (article 2.2(a) and (b)). The Protocol does not specify particular emissions standards, although a Technical Annex to the Protocol provides "guidance" to the Parties in identifying control technologies and techniques, which the Parties must "take into consideration" in implementing their obligations. The *1988 VOC Protocol* contains similar provisions (article 2.3).

23. Technology standards. The term "technology standards" may refer to either: (a) standards that are technologically-based, or (b) standards that require the use of a particular technology (also sometimes referred to as "design standards"). The requirement in the *1988 NO_x Protocol* (described in paragraph 22 above) that States adopt emissions standards based on the best available technology is an example of (a): an emissions standard with a technological basis. In contrast, the construction, design and equipment standards for oil tankers set forth in *MARPOL 73/78* are examples in general of (b): they mandate the use of particular technologies, such as segregated ballast tanks and oil discharge monitoring equipment.

24. Market approaches. Few of the instruments examined for this note incorporate market approaches such as taxes or emissions trading. One example is the *Montreal Protocol,* which permits a party to transfer any portion of its calculated level of production or consumption to another party, provided that their combined total does not exceed the limits specified in the Protocol (article 2.5 as amended). Another example is the *1994 Sulphur Protocol*, which authorizes the Parties to permit two or more Parties to jointly implement the Protocol's sulphur emission ceilings and percentage emission reductions (article 2.7).

25. General policy objectives. Rather than specify particular measures, an international environmental agreement may establish general policy objectives, leaving it up to each party to decide how to achieve these objectives. For example, the *1988 NO_x Protocol* requires the Parties to "make unleaded fuel sufficiently available" (article 4). Similarly, the *Paris Convention for the Prevention of Marine Pollution from Land-Based Sources* requires States to implement programmes and measures for the elimination of pollution by certain substances, without specifying particular measures. Also, the *1994 Sulphur Protocol* requires the Parties to make use of measures to "increase energy efficiency" and to "increase the use of renewable energy" (article 2.4), with guidance in Annex IV about available technologies for achieving these objectives.

26. Even when a convention does not specify particular policies and measures that parties must adopt, it may set forth criteria that limit the discretion of parties. For example, the *Paris Convention* requires that Parties, in adopting programmes and measures to combat land-based sources of marine pollution, must "take into account the latest technical developments" *(Paris Convention*, article 4.3).

C. Quantified emission limitation and reduction objectives

27. The term "quantified emission limitation and reduction objectives" (QELROs), as used in the Berlin Mandate, refers to a particular type of policy objective. Typically, QELROs specify a goal to be attained, leaving States with flexibility in the choice of means to achieve the goal. (See, for example, the QELROs contained in the *Montreal Protocol* and the *1985 Sulphur Protocol*.) However, QELROs may be combined in a legal instrument with specified policies and measures, as in the *1994 Sulphur Protocol*, which in Annex IV provides guidance to the Parties on policies and measures to give effect to the Protocol's obligations and in Annex V mandates specific emission and sulphur content limit values.

28. Examples of QELROs include the following:

- The *LRTAP Protocols on Sulphur, Nitrogen Oxides* and *Volatile Organic Compounds* establish national emissions limitation and reduction objectives: the *1985 Sulphur Protocol*, for example, required Parties to reduce their national annual sulphur emissions or their transboundary fluxes by at least 30 per cent from 1980 levels by the year 1993; similarly, the *1988 NO_x Protocol* and the *1991 VOC Protocol* limit national annual emissions or transboundary fluxes of nitrogen oxides and VOCs respectively; and the *1994 Sulphur Protocol* specifies "sulphur emission ceilings" for each Party;

- The *Montreal Protocol* does not directly regulate emissions of ozone-depleting substances; but it limits emissions indirectly by setting national limits on the consumption and production of specified ozone-depleting substances.

29. Legal instruments have used several bases for QELROs:

- QELROs may specify reductions from a specific base year. For example, the *1985 Sulphur Protocol* requires emissions reductions of at least 30 per cent compared to 1980, while the *1987 Montreal Protocol*, as originally adopted, required reductions in the consumption and production of ozone-depleting substances compared to 1986;
- QELROs may provide a flexible base year. For example, the *1988 NO_x Protocol* allows each State to choose any year prior to 1987 as its baseline, provided that the average annual emissions for the period 1987-1995 do not exceed 1987 emissions levels. Similarly, the *1991 VOC Protocol* provides for

30 per cent reductions in emissions for certain parties, "using 1988 levels as a basis or any other annual level during the period 1984 to 1990" (article 2.2(a));
- QELROs may be calculated to achieve specific effects thresholds for particular pollutants. This approach is used in the *1994 Sulphur Protocol*, which sets specific emission ceilings based on critical loads for sulphur deposition (for more information on this approach, see paragraphs 37-39 below);
- QELROs may be calculated for a basket of related pollutants, rather than for individual substances (see the *Montreal Protocol*, article 2).

No examples were found of QELROs based directly on population, gross domestic product, or other criteria discussed in the AGBM (although per capita consumption and emissions have been used as a basis for differentiating among responsibilities of different States; see paragraphs 40 and 42 below).

30. With regard to proposals that a QELRO apply to a group of countries collectively rather than to individual countries, an analogous approach is found in the *International Convention on the Regulation of Whaling*, which permits the International Whaling Commission to establish quotas for the maximum catch of whales in a season but forbids it from allocating these quotas by country (*Whaling Convention*, article V(1) and (2)). As a result, whaling quotas apply to the Parties collectively, and allocations of quotas by country require separate negotiations.

IV. COMMON BUT DIFFERENTIATED RESPONSIBILITIES

A. Introduction

31. This section surveys conventions that include provisions that differentiate between the responsibilities of different countries. First, it examines conventions that differentiate between the commitments of countries in Annex I (for the purpose of this paper, "Annex I countries" refers to those included in Annex I to the *UNFCCC*). Second, it examines the application of the principle of common but differentiated responsibilities to differentiate among the responsibilities of developed and developing countries. Because the Berlin Mandate provides for the elaboration of additional commitments only for Annex I Parties, this latter material is not directly relevant to the work of the AGBM, but may provide useful information about possible approaches to differentiating among Annex I Parties.

32. Different obligations may be appropriate for different sets of countries, owing to their different contributions to a problem, different capacities and priorities, and/or different circumstances (for example, economic structures, geography, climate, resource bases, starting points). As a general matter, responsibilities may be differentiated through the use of two types of approaches: (1) contextual criteria, which apply differently depending on the context; and (2) differential standards, which specify different requirements for different sets of

parties, including delayed compliance schedules or less stringent commitments for certain groups of countries.[5] These and other related points are considered further in document FCCC/AGBM/1996/17 on Review of possible indicators to define criteria for differentiation among Annex I Parties.

B. Differentiation among Annex I countries

1. Contextual criteria

33. A number of environmental agreements contain contextual criteria that could provide a basis for differentiated responsibilities, including among Annex I countries. In general, these contextual criteria recognize the differences between States in resources and capabilities.

34. For example, the *1972 Convention for the Protection of the World Cultural and Natural Heritage (World Heritage Convention)* provides that each State will "do all it can ..., to the utmost of its resources" to identify, protect, conserve, present and transmit world heritage to future generations (article 4). States must undertake specified policies and measures "in so far as possible, and as appropriate for each country" (article 5) and must submit an inventory of world heritage sites "in so far as possible" (article 11).

35. Similarly, several instruments adopted under the auspices of the Economic Commission for Europe (ECE), whose member States include developed countries and countries with economies in transition, contain contextual standards. *LRTAP*, for example, provides that States "shall endeavour to limit, and, as far as possible, gradually reduce and prevent air pollution" (article 2). More specifically, the *1994 Sulphur Protocol* provides that Parties shall ensure that sulphur depositions do not exceed critical loads, "as far as possible, without entailing excessive costs" (article 2.1). The *Resolution on Long-Range Transboundary Air Pollution*, 18 I.L.M. 1450 (1979), which was adopted in conjunction with *LRTAP*, urges States to implement that Convention before it enters into force "to the maximum extent possible" and to limit air pollution "as far as possible." Finally, the *Declaration on Low- and Non-Waste Technology and Re-Utilization and Recycling of Wastes*, 18 I.L.M. 1451 (1979), states that international cooperative activities should "tak[e] into account the interests of ECE countries that are developing from an economic point of view."

2. Differential standards

36. Comparatively few of the agreements consulted for this note establish differential standards that apply among developed country parties. An example of a differential QELRO is found in the *1994 Sulphur Protocol*, which includes an annex specifying the sulphur

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[5]Daniel B. Magraw, "Legal Treatment of Developing Countries: Differential, Contextual and Absolute Norms," *Colorado Journal of International Environmental Law and Policy*, vol. 1, pp. 69-99 (1990).

emission ceiling for each Party. These emission ceilings entail reductions for different Parties ranging from 0 to 80 per cent from 1980 levels by the year 2000 (Annex II).

37. The *1994 Sulphur Protocol* uses a "critical loads" approach as a basis for negotiating the emissions ceiling for each Party. First, the critical load (that is, the maximum deposition of sulphur compounds that does not result in significant harmful effects) for each part of Europe is calculated. Then the emissions reductions by location that would achieve these critical loads are calculated, using models of source-receptor relations. Finally, economic models are used to calculate the emissions reductions for each country that will achieve the critical loads at the lowest cost. In essence, the differential emissions reductions required by the Protocol are based on two factors: (1) the differential levels of environmental harm caused by emissions from different locations; and (2) the differential costs of reducing emissions.

38. Only the second of these two factors appears relevant to the work of the AGBM. In contrast to sulphur emissions, which are transported only a limited distance and cause different levels of damage depending on where they are deposited downwind, greenhouse gas emissions are transported globally and their effects are largely independent of where the emissions occur. The aspect of the *Sulphur Protocol* approach that is relevant to the work of the AGBM is the differentiation in emissions reductions based on where the reductions can be achieved at the lowest cost. Such a methodology could theoretically be used as a means of taking into account "differences in . . . starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, [and] available technologies and other individual circumstances," as required by Article 4.2(a) of the *UNFCCC*.

39. The *1994 Sulphur Protocol* acknowledges that "any sulphur control policy, however cost-effective it may be at the regional level, will result in a relatively heavy economic burden on countries with economies that are in transition to a market economy" (Preamble, paragraph 9). Accordingly, the Protocol provides such countries with a somewhat longer period to phase in their emission reductions, generally extending up until 2010 (see Annex II).

40. The *1991 VOC Protocol* also differentiates between the commitments of its Parties. Generally, the Protocol requires each Party to reduce its national annual emissions of emissions by 30 per cent (article 2.2(a)). However, where a country's national annual emissions in 1988 were lower than 500,000 tons and 20 kg/inhabitant and 5 tonnes/km^2, it must only stabilize its national emissions at 1988 levels (article 2.2(c)).

41. Non-environmental treaties have in some instances recognized the need for differential obligations, in order to meet the needs of States with different circumstances and different levels of economic and industrial development. For example, Article 19(3) of the *Constitution of the International Labour Organisation (ILO)* provides that, in framing recommendations or draft conventions, the International Labour Conference shall "have due

regard to those countries in which climatic conditions, the imperfect development of industrial organization, or other special circumstances make the industrial conditions substantially different." Pursuant to this provision, the *1973 Convention Concerning Minimum Age for Admission to Employment (No. 138)*, while generally establishing 15 as the minimum age for employment, allows member States "whose economy and educational facility are insufficiently developed" to initially specify a minimum age of 14 years.

C. Differentiation between developed and developing countries

42. One approach to implementing the principle of common but differentiated responsibilities is reflected in the *Montreal Protocol*, which specifies control measures for the consumption and production of ozone-depleting substances. The Protocol differentiates between the responsibilities of Parties by providing that those developing country Parties whose annual calculated level of consumption of chlorofluorocarbons (CFCs) and halons is less than 0.3 kilograms per capita ("Article 5 Parties") shall be entitled to a grace period of 10 years to meet the Protocol's control measures.

43. Another application of the principle of common but differentiated responsibilities is found in the *Generalized System of Preferences* (GSP), which was initiated in 1970 and permits the preferential treatment of developing countries as an exception to the most-favoured-nation rule of the *GATT*. According to the *Decision on Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries* (also known as the "Enabling Clause") (BISD 26S/203-205), which was adopted in 1979,

> "Notwithstanding the provisions of Article I of the General Agreement, contracting Parties may accord differential and more favourable treatment to developing countries, without according such treatment to other contracting Parties."

Preferences may include zero tariffs or lower tariffs for products originating in developing countries. Particular *GATT* agreements provide specific types of favourable treatment for developing countries. For example, the *Agreement on Technical Barriers to Trade* recognizes that, for socio-economic reasons, developing countries may adopt in their technical regulations standards aimed at preserving their indigenous technology and production methods. The Enabling Clause recognizes the principle of non-reciprocity between developing and developed countries, but qualifies this by the notion of so-called "positive graduation," which recognizes that the capacity of developing countries to make contributions on negotiated concessions will improve with the progressive development of their economies and that, accordingly, developing countries will be expected to participate more fully in the framework of rights and obligations under the *GATT*.[6]

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[6]Abdulqawi A. Yusuf, "'Differential and More Favourable Treatment': The GATT Enabling Clause," *Journal of World Trade Law*, vol. 14, pp. 488-507 (1980).

V. INSTITUTIONAL ARRANGEMENTS

A. Introduction

44. This section focuses on institutional arrangements in treaty regimes involving more than one legal instrument. The materials illustrate the wide range of options available to the AGBM in developing institutional arrangements for a protocol or another legal instrument.

45. In general, amendments to treaties do not establish separate institutional arrangements, even where the amendment may enter into force without the acceptance of all treaty parties and where, consequently, the amendment may result in two legal regimes – the amended treaty and the unamended treaty. For example, under the *London* and the *Copenhagen Amendments (to the Montreal Protocol)*, a single secretariat and Meeting of the Parties serves both the amended and the unamended instrument, and States file a single report encompassing both the Protocol and any amendments to which they are party.

46. In contrast, with respect to certain institutional arrangements (such as the conference of the parties and reports), protocols vary as to whether they establish separate institutional arrangements or use the same arrangements as their parent convention.

B. Secretariat

47. Protocols typically utilize the same secretariat as their "parent" convention, whether that secretariat is an existing institution such as UNEP or a separate institution. For example, both *LRTAP* and its protocols use the Executive Secretary of the ECE as their secretariat. Similarly, the *Montreal Protocol* assigns its secretariat functions to the *Vienna Convention* secretariat (*Montreal Protocol*, article 12).

C. Conference of the Parties

48.. Agreements utilize a variety of arrangements for meetings of the parties, such as:

- Utilizing an outside forum (for example, an existing intergovernmental committee). *MARPOL 73/78*, for example, uses International Maritime Organization (IMO) bodies such as the Marine Environment Protection Committee, rather than establishing its own meeting of the parties or subsidiary bodies;
- Holding a single meeting for related legal instruments (for example, the *Madrid Protocol* and the *Madrid Agreement* have the same Assembly);
- Establishing a separate conference of the parties.

Conferences of the parties are referred to by a variety of names, including "meeting of the parties" (*Montreal Protocol*), "executive body" (*LRTAP*), "assembly" *(World Intellectual Property Organization (WIPO) Conventions*), and "commission" (*Whaling Convention*).

49. Protocols to a convention show a similar variety: some utilize the same conference of the parties as the parent convention and others establish separate meetings.

50. On the one hand, the *Montreal Protocol* provides for meetings of the Protocol Parties, with their own rules of procedure and agenda (art. 11). During years when *Vienna Convention* meetings are held, the two meetings are held in conjunction, although each meeting has its own agenda. In contrast, separate meetings are not held for the Parties to the two amendments to the *Montreal Protocol*. Instead, issues related to the amendments are handled in the general meetings of the Protocol Parties. The Protocols to the *UNEP Regional Seas Conventions* also provide for meetings of Protocol Parties, to be held in conjunction with meetings of Convention Parties, although no provision is made for separate rules of procedure for these Protocol Party meetings (see, for example, the *Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution* and its various Protocols).

51. On the other hand, the Protocols to the *Long-Range Transboundary Air Pollution Convention* are overseen by the Executive Body of *LRTAP*, consisting of the representatives of all Convention Parties, not just the Protocol Parties. The Executive Body considers protocol matters, including reports by Protocol Parties. Amendments to a protocol are decided on by the Protocol Parties present at the Executive Body. The mandate of the Executive Body with respect to protocols is specified in the protocols themselves, rather than in *LRTAP*, which does not expressly provide that the Executive Body may act as the governing body for protocols.

52. Similarly, the *Madrid Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks* does not establish a separate meeting of the Parties. Instead, it provides that its Parties shall be members of the Union established by the *Madrid Agreement*, and shall be members of the Madrid Union Assembly (*Madrid Protocol*, articles 1, 10). Although the *Madrid Agreement* did not itself provide for such an expansion in membership or for the assumption of responsibilities for a separate legal agreement, the Parties to the *Madrid Agreement* accepted the new arrangements by an Assembly decision (MM/A/XX/3, 27 June 1989), rather than by an amendment to the Agreement.

53. When an agreement does not establish its own conference of the parties, but instead uses an existing intergovernmental forum, this raises the question of whether and how decision-making regarding the agreement will be limited to the parties, since the existing forum may include non-parties. Generally this has not proved to be a problem in practice with regard to the agreements reviewed for this note; although many agreements provide for voting procedures, decisions have ordinarily been taken by consensus and the need to

distinguish between parties and non-parties has not arisen. However, all of the agreements examined presume that, as a legal matter, decision-making authority rests with the parties.

54. For example, *MARPOL 73/78* utilizes existing IMO forums, in particular the Marine Environment Protection Committee (MEPC). This raises two issues: (a) not all MARPOL Parties are members of IMO, and (b) not all members of IMO are party to *MARPOL 73/78*. To ensure that MARPOL Parties retain decision-making power, *MARPOL 73/78* specifies that:

(i) Parties shall be entitled to participate in the proceedings of the IMO body(ies) in question, regardless of whether or not they are members of the IMO; and
(ii) Decisions regarding amendments to *MARPOL 73/78* may be voted on only by the Parties.

55. Similarly, the *Madrid Protocol*, which utilizes the Madrid Union Assembly, provides that, on matters concerning the *Madrid Agreement*, only parties to that Agreement shall have the right to vote, whereas, on matters concerning only the *Madrid Protocol*, only Protocol Parties may vote (*Madrid Protocol*, article 10(3)(a)).

56. Although the *Montreal Protocol* establishes its own Meeting of the Parties, a similar issue could theoretically arise with respect to the *London* or the *Copenhagen Amendment*, since these amendments are considered at the general *Montreal Protocol* meetings. Should a vote be necessary on an amendment issue, only the Parties to that amendment would be eligible to vote.[7] In practice, however, this has not proved to be an issue, since all matters have been decided by consensus. Moreover, when the *London* and the *Copenhagen Amendments* have been discussed, all *Montreal Protocol* Parties have been allowed to participate freely, regardless of whether they are party to the amendment under consideration.

57. A somewhat different arrangement is used with regard to the ILO Conventions. These conventions bind only those States that ratify them. Nevertheless, the International Labour Conference serves as the *de facto* "Conference of the Parties" for international labour conventions, with power to review reports to adopt revising conventions. One commentator has concluded that, in essence, international labour conventions are not self-contained instruments, but must be read in conjunction with the *Constitution of the ILO*.[8]

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[7]This is based on an interpretation of the *Montreal Protocol* rules of procedure by the *Montreal Protocol* Secretariat.

[8]C. Wifred Jenks, "The Revision of International Labour Conventions," British Yearbook of International Law, vol. XIV, pp. 42-64 (1933).

D. Subsidiary bodies

58. The conventions reviewed for this note illustrate that the same subsidiary bodies may be used for a convention and its protocols.

59. *LRTAP* does not itself establish any subsidiary bodies, but provides that the Executive Body may "establish, as appropriate, working groups to consider matters related to the implementation and development of the present Convention" (article 10.2(b)). The Executive Body has established four major working groups - the Working Groups on Effects, Abatement Techniques and Strategies, and the Steering Body for the Co-operative Programme for the Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe (EMEP) which are open to all *LRTAP* Parties. Although neither *LRTAP* nor its protocols specifically provide for the establishment of subsidiary bodies for the protocols, the four major Working Groups address matters relating to *LRTAP* protocols. For example, at the request of the Executive Body, the Working Group on Abatement Techniques considers revisions to a protocol's technical annexes. In doing so, no distinction is made between members of the Working Group that are party to the protocol under consideration and those that are not.

60. Similarly, with regard to *MARPOL 73/78*, the Marine Environment Protection Committee (MEPC) has established functionally-based subcommittees, which address all of the *MARPOL* annexes, rather than establishing different subcommittees for each annex. Any member of the MEPC may participate on these subcommittees, regardless of whether they are party to the particular annex under discussion.

61. Membership in subsidiary bodies created by the amendments to the *Montreal Protocol* are open to non-parties to those amendments. For example, several countries that are not party to the *London Amendment* have served on the Multilateral Fund Executive Committee, which was established by the Amendment. Similarly, the jurisdiction of the Montreal Protocol Implementation Committee includes questions relating to compliance with Protocol amendments, even though the Committee may include representatives of states that are not party to the amendments.

E. Budget and financing

62. Legal instruments differ as to whether they attempt to ensure that their administrative costs are borne by the parties.

63. Some treaties attempt to ensure that the contracting parties bear the administrative costs of the agreement. For example, the *London (Dumping) Convention*, which utilizes the IMO as its secretariat, provides that "any Party to this Convention not being a member of the Organization shall make an appropriate contribution to the expenses incurred by the Organization in performing these duties" (article XIV(2)).

64. The ozone agreements have used a mixed approach. The *Montreal Protocol* specifically provides that the funds required for its operation "shall be charged exclusively against contributions from the Parties" (article 13.1). As a result, although the Secretariat for the *Vienna Convention* and *Montreal Protocol* services both agreements, it does so under separate budgets. The budget for each agreement is approved by the Parties to that agreement, and separate trust funds are maintained for activities under the two agreements. However, there is no separate budget for the *Montreal Protocol* amendments, and contributions to the budget of the Protocol do not make a distinction between Protocol Parties and Amendment Parties. Moreover, non-parties to the *London Amendment*, by a consensus decision of the *Montreal Protocol* Parties, have been assessed contributions to the Multilateral Fund, which was established by that Amendment, and have in practice willingly paid.

65. WIPO provides secretariat services to a number of conventions with no direct reimbursement by the convention parties. In 1993, the governing bodies of WIPO and the various conventions administered by WIPO adopted a common decision establishing a unitary contribution system for WIPO and its conventions, effective from 1 January 1994 (AB/XXIV/5, 31 May 1993). As a result of this decision, each State that is a member of WIPO or a party to one of its contribution-financed conventions pays a single contribution, irrespective of the number of contribution-financed conventions to which it is a party. It should be noted that the majority of WIPO's budget comes from fees charged to private entities under the Madrid System Concerning the International Registration of Marks and the 1970 Patent Cooperation Treaty (PCT), rather than from government contributions.

F. Communication and review of information

66. Communication of information under related legal instruments may be either consolidated or separate. Under *LRTAP*, Parties file a single report relating to *LRTAP* and its protocols. Although, in theory, the parties to each protocol retain control over the reporting procedure for their protocol (the *1994 Sulphur Protocol*, for example, provides that reports shall be in "conformity with a decision regarding format and content to be adopted by the [Protocol] Parties at a session of the Executive Body" (article 5.1)), in practice, guidelines for the consolidated reports are adopted by the Executive Body by consensus, and reports are submitted to and considered by the Executive Body as a whole.

67. In contrast, Parties submit separate reports under the *Vienna Convention* and *Montreal Protocol*. *Montreal Protocol* reports, however, include reports on the two Amendments, and the Amendment Parties are not required to submit separate reports.

68. Under the ILO, States file separate reports for each *ILO Convention* to which they are party, according to a schedule established by the ILO Governing Body. These reports are then reviewed pursuant to a single, consolidated review process, which may include review by the Committee of Experts on the Application of Conventions and Recommendations, by a panel or an inter-governmental committee set up by the ILO Governing Body, and, in

selected cases, by the International Labour Conference. As a result, the national reports for each convention are considered by ILO review bodies that are not limited to the parties to the convention in question.

G. Dispute resolution and multilateral consultative process

69. None of the protocols reviewed for this note establishes its own separate dispute settlement procedures. However, both the *Montreal Protocol* and the *1994 Sulphur Protocol* establish their own compliance procedures (*Montreal Protocol*, article 8; *1994 Sulphur Protocol*, article 7).

H. Amendment

70. The protocols examined for this review all limit decisions regarding amendment to the protocol parties, either by their own terms (for example, the *LRTAP* protocols) or as a result of a provision in their parent convention (for example, *Vienna Convention*, article 9, which specifies the amendment procedure for its protocols). Similarly, *MARPOL 73/78* limits decisions regarding amendment of an annex to those Parties bound by the annex (article 16(4)).

VI. POSSIBLE REGIONAL PARAMETERS

71. Numerous conventions have been negotiated at the regional level to address environmental problems. Examples include the following: the *UNEP Regional Seas Conventions*, the *Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft (Oslo Convention)* and the *Paris Convention for the Prevention of Marine Pollution from Land-Based Sources*.

72. Regional agreements are most commonly used to address environmental problems with a regional scope, for example, acid rain and the protection of migratory animals. Moreover, even where different regions share similar problems, regional approaches may be desirable in order to take account of different local circumstances. This is one of the primary rationales for the UNEP Regional Seas Programme. Although seas around the world share similar problems (land-based pollution, ocean dumping, and so forth), these problems have primarily local sources and the same approach may not be appropriate for every region.

73. Regional approaches may also be used in order to:

- Take account of different local concerns and priorities. For example, the first convention addressing the problem of ocean dumping (the *Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft*) was regional in character, reflecting the particular concern about the problem

among countries bordering the Northeast Atlantic. Similarly, African countries adopted the *Bamako Convention on the Ban of Import into Africa and Control of Transboundary Movement and Management of Hazardous Wastes within Africa*, reflecting their serious concern about this problem;

- Promote regional solidarity and institution-building. Regional approaches may attract greater participation than global approaches. This has been true, for example, of the *UNEP Regional Seas Conventions*, as compared with global conventions addressing marine pollution adopted under the auspices of the IMO;

- Develop special implementation machinery. The regional human rights agreements, such as the *European Convention on Human Rights*, establish special mechanisms and institutions, including rights of individual petition and bodies with compulsory jurisdiction to hear claims;

- Allow more rapid progress and set an example for global action. For example, in November 1995 the Executive Body of *LRTAP* authorized the rapid negotiation of a protocol on persistent organic pollutants, in part to set a model for action at the global level.

One commentator has concluded: "Regional approaches still seem the mid-way path acceptable for purposes of enforcement of mutually accepted standards. The compromise is that the regional forum permits adoption of standards more stringent than the global ones."[9]

74. However, the use of regional conventions to address global environmental problems would have to take into consideration two interrelated factors:

(a) A regional approach may not provide a durable solution to global environmental problems such as climate change, since the factors that contribute to climate change are global rather than regional in scope; and

(b) States may fear that taking regional measures will put them at a competitive disadvantage with respect to States in other regions with less stringent standards, and may believe that global action is necessary in order to maintain a "level playing field".

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[9]C.O. Okidi, "Protection of the Marine Environment through Regional Arrangements," Paper presented at the 23rd Annual Conference of the Law of the Sea Institute, June 1989.

Annex

LIST OF AGREEMENTS

Short title	Full title
Antarctic Treaty	Antarctic Treaty, 1 December 1959
Antarctic Environment Protocol	• Protocol on Environmental Protection, 4 October 1991
Bamako Convention	Bamako Convention on the Ban of Import into Africa and Control of Transboundary Movement and Management of Hazardous Wastes within Africa, 30 January 1991
Basel Convention	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 22 March 1989
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora, 3 March 1973
European Human Rights Convention	European Convention on Human Rights, 4 November 1950
London Convention	Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 29 December 1972
LRTAP	Convention on Long-Range Transboundary Air Pollution, 13 November 1979
1985 Sulphur Protocol	• 1985 Protocol on the Reduction of Sulphur Emissions or Their Transboundary Fluxes by at Least 30 Per Cent
1988 NO_x Protocol	• 1988 Protocol Concerning the Control of Emissions of Nitrogen Oxides or Their Transboundary Fluxes
1991 VOC Protocol	• 1991 Protocol Concerning the Control of Emissions of Volatile Organic Compounds or Their Transboundary Fluxes
1994 Sulphur Protocol	• 1994 Protocol on Further Reductions of Sulphur Emissions
GATT	General Agreement on Tariffs and Trade
Enabling Clause	• Decision on Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries, 28 November 1979
----------	• Protocol Relating to Trade Negotiations among Developing Countries, 8 December 1971

ILO Constitution	Constitution of the International Labour Organization
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships, London, 2 November 1973, as modified by the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 17 February 1978
Oslo Convention	Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, 15 February 1972
Paris Convention	Paris Convention for the Prevention of Marine Pollution from Land-Based Sources, 4 June 1974
Refugee Convention	Convention Relating to the Status of Refugees, 28 July 1951
Refugee Protocol	• Protocol Relating to the Status of Refugees, 16 December 1966
UNEP Regional Seas Conventions	Abidjan Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, 23 March 1981
	Barcelona Convention for the Protection of the Mediterranean Sea against Pollution, 16 February 1976
	• Athens Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources, 17 May 1980
	• Geneva Protocol concerning Mediterranean Specially Protected Areas, 3 April 1982
	Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, 24 March 1983
	Lima Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific, 12 November 1981
	Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, 21 June 1985
	Noumea Convention for the Protection of the Natural Resources and Environment of the South Pacific region, 25 November 1986
Vienna Convention	Vienna Convention for the Protection of the Ozone Layer, 22 March 1985
Montreal Protocol	• Montreal Protocol on Substances that Deplete the Ozone Layer, 16 September 1987

	• London Amendment, 1990
	• Copenhagen Amendment, 1992
Whaling Convention	International Convention for the Regulation of Whaling, 2 December 1946
WIPO Convention	Convention Establishing the World Intellectual Property Organization, 14 July 1967
Madrid Agreement	• Madrid Agreement Concerning the International Registration of Marks, 14 April 1891, as revised
Madrid Protocol	• Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks, 27 June 1989
PCT	• Patent Cooperation Treaty, 19 June 1970, as amended and modified
World Heritage Convention	Convention for the Protection of the World Cultural and Natural Heritage, 23 November 1972

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UN

UNITED NATIONS

Framework Convention on Climate Change

Distr.
GENERAL

FCCC/AGBM/1996/7
8 July 1996

ENGLISH ONLY

AD HOC GROUP ON THE BERLIN MANDATE
Fourth session
Geneva, 8-19 July 1996
Item 3 (b) of the provisional agenda

STRENGTHENING THE COMMITMENTS IN ARTICLE 4.2(A) AND (B)

QUANTIFIED EMISSION LIMITATION AND REDUCTION OBJECTIVES WITHIN SPECIFIED TIME-FRAMES

Review of possible indicators to define criteria for differentiation among Annex I Parties

Note by the secretariat

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I. INTRODUCTION

A. Mandate

1. The Ad Hoc Group on the Berlin Mandate (AGBM), at its second session, requested the secretariat to prepare, for consideration at its fourth session, a document reviewing possible indicators that could be used to define criteria for differentiation among Annex I Parties (FCCC/AGBM/1995/7, para. 39).

B. Scope of the note

2. This note is an initial presentation of ideas on possible indicators for differentiation. Differentiation in this note has, in the absence of an agreed definition, been taken to mean that some Annex I Parties or groups of Parties would have commitments that are different from those of other Annex I Parties or groups of Parties.

3. The note does not consider the question of whether or not differentiation is necessary or desirable. In the absence of any specific discussion in the AGBM or guidance from the AGBM on the question of differentiation, it does not seek to develop such indicators for differentiation nor to recommend any particular options. While differentiation could apply to policies and measures as well as to quantified emission limitation and reduction objectives (QELROs), this initial note focuses upon the latter.

4. The note is divided into four sections. Section II discusses a number of background issues. Section III outlines the basic understandings on which, in the absence of explicit guidance, this note is based. These two sections are designed to set the stage for a discussion of indicators. Section IV then provides an overview of some possible indicators for differentiation. The first annex to the note gives selected extracts of proposals made in relation to differentiation; the second annex lists most Annex I Parties, their 1990 greenhouse gas emissions, and carbon dioxide (CO_2) emissions, according to three different indicators.

5. A number of Parties have referred to related concepts such as "equitable burden sharing", collective objectives, or an "emissions bubble". This note has been prepared on the understanding that indicators for differentiation could contribute to implementing these and similar concepts.

C. Possible action by the Ad Hoc Group on the Berlin Mandate

6. The AGBM may wish to consider the following issues:

(a) Should the protocol or another legal instrument to be adopted by the Conference of the Parties at its third session (COP 3) include provision for differentiation among Annex I Parties?

(b) If so, what might be the nature of this differentiation?

(c) How would different categories of Parties be determined and what would be the role of indicators in this regard?

As a means to narrow the scope of future deliberations, the AGBM may wish to invite interested Parties to develop a concrete proposal on differentiation, possibly including indicators, that would help to focus the discussion. In addition, it could be possible to arrange an informal workshop on the issue. However, further work on indicators by the secretariat, in the absence of guidance on the nature of the differentiation to be pursued, may not be productive. On this basis, the AGBM may wish to clarify how it wishes to approach its next discussion of the issue.

II. BACKGROUND

A. Differentiation in the Convention

7. Differentiation is reflected in the Convention in several ways. First, there is a clear differentiation between Annex I and non-Annex I Parties, and between Annex II and other Parties. There is also some differentiation among Annex I Parties. Article 4.6 provides that a certain degree of flexibility shall be allowed by the COP to the Annex I Parties undergoing the process of transition to a market economy, and is an example of "contextual" differentiation as discussed in paragraph 18 below.

8. Further contextual differentiation is found in Article 3.1 which refers to "common but differentiated responsibilities and respective capabilities" and provides that developed country Parties should take the lead in combating climate change and the adverse effects thereof. Contextual differentiation is again present in Article 4.2(a), which refers to Annex I Party commitments while also "taking into account the differences in these Parties' starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties to the global effort regarding that objective". Article 4.2(a) is also reflected in paragraph 2 (a) of the Berlin Mandate (decision 1/CP. 1).

9. Articles 4.1, 4.3 and 4.10 also reflect some degree of differentiation *vis-à-vis* the implementation of commitments by Annex I Parties. The Convention also provides for differentiation among non-Annex I Parties, including Article 12.5 which allows Parties that are least developed countries to make their initial national communication at their discretion.

B. Current situation in the Ad Hoc Group on the Berlin Mandate

10. The limited discussions in the AGBM to date would suggest that there are two general approaches to the question of whether there should be differentiation among Annex I Parties in the protocol or another legal instrument to be adopted at COP 3. Some Parties have spoken in favour of a "flat rate reduction" objective, because of the difficulty they perceive in negotiating a differentiated regime. They also see such an approach as equitable, by virtue of the fact that progress is measured against a Party's own national emissions in the base year.

11. Other Parties see deficiencies in the "flat rate" approach and have advocated a differentiated approach. In their view, this would better respond to differing national circumstances, particularly with regard to costs of abatement and levels of economic development and growth. They also see differentiation as more equitable and efficient and argue that it would enhance the cost-effectiveness of the emission reduction effort.

12. In their submissions, some Parties have suggested a number of indicators for differentiation, to be employed either individually or in combination. Where there were several similar proposals, these have in the following list been grouped as a single item to reduce repetition. Annex I to this note gives fuller citations from which the following proposals have been extracted:

(a) Emissions per square kilometre of a country's territory (see annex I, items a, f);

(b) Availability of sinks (annex I, item f);

(c) "Critical economic loads" (annex I, item e);

(d) Per capita emissions (annex I, items a, f, g, i, j);

(e) Per unit of gross domestic product (GDP) or gross national product (GNP) emissions (annex I, items a, f, g, i, j);

(f) Share of global emissions (annex I, item g);

(g) Share of respective Party to global warming (annex I, item i);

(h) Carbon intensity of primary energy use (annex I, item g);

(i) Marginal costs of abatement per unit of reduction (annex I, items g, h, j); and

(j) Levels of production and consumption of energy per capita (annex I, item f).

This list is not exhaustive of all possible indicators for differentiation; in addition, many of the indicators listed here could be further refined.

13. Parties have also proposed a number of approaches to implementing differentiation, including the following (annex I to this note again gives fuller citations from which these proposals have been extracted):

(a) Countries in a given category or across categories could choose to form clusters, combining their emission reduction objectives and sharing the costs and benefits of achieving them (annex I, items c, g);

(b) A protocol could be drawn up with different provisions for different groups of countries (annex I, item c);

(c) A system of "dual commitments" could be devised (countries accepting separate domestic and "international" commitments) (annex I, item b);

(d) A system of market mechanisms could be introduced, for example a progressive tax on CO_2 at coordinated rates; an equal price on emissions wherever they occur, and enabling market transactions to lead toward this efficient allocation; an economic instrument which equates the size of the incentive to mitigate emissions (annex I, items h, j); and

(e) Countries with relatively high domestic costs of measures might do more internationally (assuming this is cheaper) and countries with relatively low domestic costs would do more at home (annex I, items b, j).

Again, this list is intended to identify proposals mentioned so far by Parties. It is not meant to exhaust all possible approaches to differentiation. In particular, concepts of emissions permits and emissions trading, emissions caps, and banking or crediting of emissions reductions could be added.

C. Work on indicators in other forums

14. A number of international organizations, and some Parties, are working on, or have developed, environmental indicators. However, indicators tend to be specific to the task for which they have been designed. Thus, environmental, sustainable development, or economic indicators, for example, while enriching the discussion of indicators for differentiation among Annex I Parties, may not readily meet the needs of the AGBM in this context.

15. Chapter 40 of Agenda 21 called for the development of indicators of sustainable development to be used at the national level. The Commission for Sustainable Development, through the Department for Policy Coordination and Sustainable Development, has been coordinating this work, which is being performed by a number of international agencies. A major element of this work has been the drafting of methodology sheets describing the

significance, methodology and data availability for approximately 135 sustainable development indicators. Some of these indicators relevant to climate change include:

(a) Emissions of greenhouse gases;

(b) Annual energy consumption per capita;

(c) De- and re-forestation rate;

(d) Share of natural-resource-intensive industries in manufacturing value added; and

(e) Ratio of consumption of renewable to that of non-renewable energy resources.[1]

16. This work remains at a relatively formative stage. It is unlikely that results will be available in time to meet the schedule of the AGBM. Moreover, while some of these indicators may be relevant to climate change policy making or as measures of progress, their relevance to differentiation of commitments among Annex I Parties may be somewhat limited.

III. DIFFERENTIATION AND INDICATORS

17. In preparing this note, the secretariat based its work on the following understandings.

18. Differentiation among Annex I Parties could take one of two forms:

(a) The differentiation could be "concrete", whereby different Parties or different groups of Parties would have different commitments. For example, Parties could be divided into two or more groups, with each group having different QELROs or different base or target years; or

(b) The differentiation could be "contextual", in that Annex I Parties would share the same commitment or commitments, but the achievement of such commitments would depend upon, or take account of, the national contexts.[2]

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[1]Implementation plan for the Commission for Sustainable Development work programme on indicators for sustainable development, November 1995.

[2]Relevant examples from other conventions are outlined in section IV of document FCCC/AGBM/1996/6 on the possible features of a protocol or another legal instrument.

19. The secretariat prepared this note on the understanding that "indicators for differentiation" are a means to help Parties take decisions on how the commitments adopted by Annex I Parties or groups of Parties might differ. Indicators for differentiation thus have a specific purpose that distinguishes them from other indicators, such as indicators for sustainable development or other environmental indicators.

20. Simple indicators would be easier to negotiate, compile and use. More complex indicators, or compilations of indicators, may be more sensitive to national differences, may better clarify the forces which drive emissions, and may also have the potential to result in more efficient and equitable outcomes. Complex indicators, or compilations of indicators, would, however, take some time to be developed and agreed. Likewise, indicators for factors that can be directly observed may be more readily adopted than indicators which have to be estimated.

21. If differentiation is to be pursued, the AGBM may wish to consider whether this might be considered on an incremental basis, beginning with a "knowledge building" phase. Alternatively, or in addition, the outline of a differentiated approach could be adopted, and the details subsequently negotiated.

22. A system for differentiation could be implemented with or without the use of indicators. Though the former case is the subject of this note, the AGBM may wish to observe that there are several possibilities for the latter case. For example:

(a) Parties could "self-select" into one of several "commitment categories" that the AGBM had established. For example, the AGBM could adopt several QELROs, and invite Parties to subscribe to the commitment which is most suited their national circumstances. In this way, different groups of Parties would be constituted. Parties could be invited to outline the reasons for their choice, to help clarify those factors most relevant to differentiation;

(b) The AGBM could decide to allocate commitments based upon economic or other differentiation formulae which, for example, attempt to define a set of actions that would minimize the overall international cost of abatement. While this may be a long-range possibility, in the absence of a relevant internationally accepted model, and as the numerous existing models vary significantly in their estimates of costs and prescriptions for action, it may be premature for the AGBM to consider adopting such an approach to differentiation at this time; or

(c) The flat rate and differentiated approaches, discussed in paragraphs 10 and 11 above, could potentially be combined. Under this possibility, all Parties could agree to a flat rate of emissions reductions for a portion of their burden, and further reductions could be negotiated according to differentiated formulae.

IV. OVERVIEW OF SOME POSSIBLE INDICATORS FOR DIFFERENTIATION

23. For the purposes of this paper the secretariat has identified three clusters of indicators for differentiation among Annex I Parties. These indicators are based on:

(a) National emissions;
(b) National circumstances; and
(c) Costs of action.

Parties may wish to propose additional clusters. Possible indicators falling within each of these clusters are discussed below, including issues related to how they might function in differentiating among Annex I Parties.

A. National emissions

24. Three basic indicators are commonly identified as potentially useful in differentiating among Annex I Parties:

(a) Emissions per Party;
(b) Emissions per capita; and
(c) Emissions per unit of GDP.

"Emissions" could be taken as pertaining to individual greenhouse gases, or to all greenhouse gases aggregated using global warming potentials, and could also be taken to include removals by sinks. Annex II to this note contains a list, presented for illustrative purposes only, of those Annex I Parties for which data were available from national communications, their total greenhouse gas emissions, and CO_2 emissions, for each of these three indicators for 1990. In addition, a perspective on the use of two of these indicators is provided in the second compilation and synthesis of national communications from Annex I Parties (FCCC/CP/12/Add.1, para. 29).

25. The level of emissions per Party is the most straightforward indicator. The relevant 1990 information is readily available in the national communications for most greenhouse gases, although it is not always directly comparable. Variations on both this and the following two indicators would include the capacity to reflect changes over time by adopting different base and benchmark years, or to calculate average annual emissions over a multi-year period. It might also be possible to reflect in some way the concept of historical emissions, or a Party's share of global emissions.

26. The emissions per Party indicator would allow for differentiation according to the absolute level of emissions, or the rate of change of emissions over time. For example, particular commitments could be applied to Parties or groups of Parties, based on their emissions levels in a particular year or years. This indicator would not reflect the different

circumstances of populous countries, energy-inefficient economies, energy-intensive primary or secondary industry economies, or fossil-fuel dependent countries. All have high levels of emissions, although the reasons in each case are very different. Nor would this indicator reflect the cost of emission reductions.

27. The indicator of emissions per capita is one of the most commonly used indicators. It is readily calculated by dividing national emissions by national population. It is a more refined indicator than emissions per Party as it reflects a Party's emissions per individual.

28. Differentiation according to emissions per capita could take the form of different commitments for Parties whose per capita emissions fall above or below a certain level. Unlike emissions per country, emissions per capita is an indicator which can over time distinguish between rising emissions due to rising population, and rising emissions for a given population. It would not reveal the reasons for differences in per capita emissions, which include the factors mentioned above in the discussion of emissions per Party. It would also not reveal the cost of emission reductions, or identify relevant national circumstances, for example as discussed in paragraph 31.

29. Emissions per unit of GDP is the third basic measure. It is calculated by dividing national emissions by national GDP (and could be refined by calculating emissions per GDP adjusted, for example, for purchasing power parity).

30. Emissions per unit of GDP could permit differentiation on the basis of whether Parties fall above or below a certain level of emissions per GDP. A more sophisticated application of this indicator would disaggregate national emissions per unit of GDP on a sectoral basis (agriculture, industry, transport, and so on, or yet more detailed breakdowns). The measure is dependent on calculations of GDP, methodologies for which vary between countries. As emissions per unit of GDP vary according to national energy sources and energy efficiency, type of economic production, consumption of energy per unit of GDP, and so on, it can disguise a variety of national circumstances. It is thus not a direct measure of economic efficiency. The indicator would also not reveal the cost of emission reductions. Like emissions per capita, it is a more revealing indicator than emissions per Party, as it measures a Party's emissions per unit of GDP.

B. National circumstances

31. Differences in national circumstances are at the centre of the discussion of QELROs as they influence each Party's scope for action and the associated costs and benefits. The national communications from Annex I Parties mention a wide range of national circumstances that affect emissions profiles and response capabilities. These include:

(a) Physical characteristics such as land area, sinks, and climatic conditions;

(b) Demographic characteristics such as population density, growth and distribution;

(c) Energy profile, including the extent of, and potential for, renewable and non-fossil energy generation; degree of implementation of, and potential for, energy efficiency and conservation programmes; and the replacement cycle of infrastructure; and

(d) Socio-economic characteristics such as the energy intensity of economic activity, dependence on primary production and/or on export of energy-intensive goods, patterns of consumption, waste generation, population of ruminant animals, and economic structure and infrastructure.

32. There does not appear to be a simple indicator, or package of simple indicators, which could adequately reflect differing national circumstances. However, it may be that a series of such indicators could be developed over time if this were desired. Options relevant to taking account of national circumstances would include:

(a) Indicators derived from national circumstances (such as those listed in paragraph 31 above);

(b) Indicators reflecting circumstances in different sectors (e.g., the concept as proposed by some Parties of "heating degree days");

(c) Indicators to reflect factors that are within the control of Parties (e.g., degree of implementation of energy efficiency measures) or factors beyond their control (e.g., the existence of climatic extremes or the availability of potential sinks).

Moreover, it is conceivable that a series of indicators could be aggregated into some form of index. As noted in paragraph 20 above, this would take some time to develop.

C. Cost-based differentiation

33. Cost is one of the basic determinants by which to consider emissions reductions. There are a number of methods by which the consideration of costs may lead to indicators for differentiation, some of which are discussed below. It should be noted, however, that cost-based differentiation could also be derived from economic or other differentiation formulae. Further, the Intergovernmental Panel on Climate Change has identified "no regrets" actions that can be undertaken in many areas at little or no cost.

GDP

34. GDP has been mentioned by several Parties as one factor relevant to differentiation. An indicator based on GDP might involve Parties whose GDP is above a certain level undertaking more extensive commitments than other Parties.

35. To the extent that GDP correlates to national emissions levels, the use of GDP as an indicator imposes burdens upon those who have both contributed to, and benefited from, past emissions. In this respect, it takes account of the respective capabilities of Parties.

36. If GDP were to be developed as an indicator for differentiation, several important issues would have to be clarified. It would need to be determined whether GDP was the best measure to be adopted, or per capita GDP, purchasing power parity, or another similar measure. It would need further to be agreed whether those Parties with high GDP but low emissions should bear a burden equal to those with high GDP and high emissions.

Equalizing the costs of action

37. Some Parties have proposed that differentiation should be based on "equalizing the costs of mitigation", or the marginal costs of emissions abatement efforts, across countries. Absolute costs or some other formula could also be possible. Such an approach could also be characterized as one in which Parties would expend similar levels of effort to achieve different commitments.

38. It has been suggested that "net national economic cost", measured by GDP forgone, and adjusted for a country's capacity to pay, could be used as the indicator of a Party's emission abatement efforts. Capacity to pay could, under this proposal, be derived from measures of per capita GDP. This proposal aims to ensure that Parties face broadly equivalent economic costs on a per capita basis for emission reductions.

39. In addition to the need to decide on the measure of costs to be used, the methodology for defining and calculating costs and benefits would also need to be agreed; in this way the costs faced by different Parties could be compared. A means would also need to be determined to ensure that the costs accounted for were calculated at the level of the least cost per unit of greenhouse gas abatement. Such an approach would be based on projected costs derived from economic models, rather than actual costs, as it looks to the future and to anticipated costs avoided. Thus, the use of common models, or transparency in modelling, would need to be discussed. These methodological issues may not be readily resolved.

40. Such an indicator by itself would, to some extent, reflect differing national circumstances. It would reflect purely economic considerations to the exclusion of non-economic factors such as per capita emissions.

Annex I

LIST OF PROPOSALS ON DIFFERENTIATION MADE TO THE AD HOC GROUP ON THE BERLIN MANDATE

Although there has been no detailed discussion of indicators for differentiation in the AGBM, some Parties have made proposals relating to differentiation by Annex I Parties. Relevant issues were also discussed at the workshop on QELROs held during the third session of the AGBM. Some proposals made in submissions* include:

(a) Analysing "anthropogenic GHG emissions by calculating them on a per capita, per GNP unit and per square kilometre of a country's territory basis" (A/AC.237/MISC.43/Add.1, p. 3 - proposed by the Russian Federation);

(b) Translating "the required emission reductions into regional and/or national 'tasks', taking into account a fair sharing of the costs, a cost-effective approach and transboundary effects of national measures. In searching for a fair distribution mechanism a system of 'dual commitments' (countries accept separate domestic and 'international' commitments) might be able to increase flexibility. Countries with relatively high domestic costs of measures might do more internationally (supposed this is cheaper) and countries with relatively low domestic costs would do more at home" (FCCC/CP/1995/MISC.1, pp. 39-40 - Netherlands);

(c) Adopting "a protocol with different provisions for different groups of countries, as in the case of the Montreal Protocol. Developing binding targets and timetables for the industrialized countries, based on the principle of fair burden sharing, will require other solutions than just setting equal targets for all countries concerned. In concrete terms, we would advocate an approach whereby a joint target is set for the OECD countries, and that mechanisms for its implementation be developed based on the principle of equitable burden sharing between the countries. This approach could result in differentiated targets for individual countries ... Recognizing that establishing principles for fair burden sharing may be complicated, considerable efforts may need to be undertaken in studying and developing adequate methodologies which can enable us to agree on such principles " (FCCC/CP/1995/MISC.1, p. 55 - Norway);

(d) Using "collective targets, such as for the group of Annex-I countries ... would allow a least cost strategy to be followed, that could drastically reduce the costs for all Parties involved. That is, if the accompanying issue of a fair distribution of the costs can be resolved" (FCCC/AGBM/1995/MISC.1/Add.1, p. 39 - Netherlands);

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* The following extracts from submissions by Parties are reproduced as received and without formal editing.

(e) Setting "a common emission target for a group of Parties, such as the OECD, which is to be achieved through 'equitable and appropriate contributions by each of these Parties'. In practical terms this would mean that the emission targets for each of the Parties would be differentiated on the basis of their 'differences in starting points and approaches, economic structures and resource bases'. ... the idea of a fair distribution of costs suggests that the 'critical economic loads' would be an appropriate point of departure. In other words, commitments under a Protocol or other legal instrument should be differentiated among the Parties in emission terms. In terms of total economic loads, however, there should be no differentiation among the Parties which are part of the common emission target.
Thus an important task of the analysis and assessment phase will be to elaborate further the concept of *equitable and appropriate contributions* (or *fair distribution of costs* or *burden sharing* or whatever label one chooses to address this pivotal issue)"
(FCCC/AGBM/1995/MISC.1/Add.1, pp. 40-41 - Norway);

(f) Defining "the principle of common but differentiated responsibilities, and [adopting] certain criteria for its practical implementation. The criteria should reflect social, economic and some climatic parameters relevant in the context of sustainable development ... Among these criteria one could mention:

- GDP per capita;
- amount of anthropogenic emissions, first of all of carbon dioxide and methane, per capita and per unit of territory;
- amount of sinks and net emissions per capita and per unit of territory;
- levels of production and consumption of energy per capita.

"To take into account the cumulative effect of these criteria for the purpose of determining differentiated commitments of individual countries it is proposed to evaluate specific indicators according to each criterion by summing up their reverse values. ... The principle of common but differentiated responsibilities in the context of the Convention is proposed to be formulated as follows:

> *"The common responsibility of the Parties to the Convention means common actions aimed at protection of the climate system to attain the ultimate goal of the Convention. The differentiated responsibility means individual responsibilities of the Parties to the Convention related to their commitments determined to taking into account their economic capabilities and stipulated in a protocol or another legal instrument* "
> (FCCC/AGBM/1995/MISC.1/Add.1, pp. 55-56 - Poland and the Russian Federation);

(g) Assigning "different emission reduction objectives ... to different categories of countries. Such categories would be defined on the basis of appropriate and agreed criteria, which should be based on combined and appropriately weighted indicators such as per capita emissions, GDP, share of global emissions, carbon intensity of primary energy use, and marginal abatement costs. To illustrate this point, we can use as an example a simple

categorisation based on per capita emissions of energy-related carbon dioxide: countries would be grouped in categories based on increments of, say, 5 tonnes of CO_2 per capita. To each of these categories would be assigned different quantitative emission reduction objectives between 2000 and 2020 based on 1990 levels, starting, for the first category, with an emission cap (i.e. stabilization at 1990 levels beyond the year 2000) ... countries in a given category or across categories could choose to form clusters, combining their emission reduction objectives and sharing the costs and benefits of achieving them" (FCCC/AGBM/1995/MISC.1/Add.2, p. 13 - Switzerland);

(h) Applying a "fairness criterion, leading to an acceptable burden sharing between the Parties concerned ... The cost of the new measures which may well be implemented by the Annex I Parties after the year 2000 is very different from one country to another bearing in mind in particular the intensity of the efforts already accomplished and the results obtained in energy policy matters. ... These starting point differences between the Annex I Parties will have to be fully taken into account when determining new commitments, in accordance with the Berlin Mandate. ... the most efficient and also the most equitable manner of sharing the effort to reduce CO_2 emissions among developed nations is to get all the emission reductions whose cost is lower than a common reference level carried out in all these countries. The simplest way to achieve this result, the least ambiguous for all the actors involved and the least costly in terms of administrative management costs, is to institute in the tax regimes of all these countries a progressive tax on CO_2 at rates coordinated between them" (FCCC/AGBM/1995/MISC.1/Add.3, pp. 14-16 - France);

(i) Taking as "the main criterion for differentiation ... GDP per capita. The share of the respective Party to the global warming should also not be forgotten in the list of such criteria" (FCCC/AGBM/1996/MISC.1, p. 41 - Estonia);

(j) Placing "an equal price on emissions wherever they occur and enabling market transactions to lead toward this efficient allocation. This might be achieved, for example, through setting an equal price on carbon in all (Annex I) countries at a level that will achieve a 'bubble' target or through establishing a system of emission permit for trading within that 'bubble'. These solutions are a long term and desirable goal but they are unlikely to be achievable in the next period ...

"We would suggest that targets would have least aggregate cost if they had the objective of equating the costs of mitigation across countries, ie ensuring that the marginal costs of abatement (per unit of emission reduction) to meet a given target in one country were not significantly different from the marginal costs in another country with a target. Further, if marginal abatement costs were similar between countries this would go a long way towards allaying equity concerns.

"A 'bubble' target for Annex I Parties would be first best only in the context of an agreement on how to distribute emission reductions within that 'bubble', eg through an economic instrument which equates the size of the incentive to mitigate emissions across all opportunities ... seeking agreement on rules for apportioning responsibility (eg on the basis of emissions per capita, per GDP or specific economic structures or fuel mixes) will rapidly lead towards special pleading on the grounds of individual national circumstances which are unlikely to be either testable or economically efficient. An alternative approach is for each country to have the same target (eg maintain emissions at 1990 levels, 10% reduction) but that Joint Implementation (JI) activities in other Annex I Parties (or potentially any other country with an equivalent target) could be credited towards achievement of the national target...

"... consideration needs to be given to the adoption of cumulative targets in which the responsibility is for limiting the total emissions within a time period (eg the ten years 2000-2020) rather than measuring emissions in a specific year (eg 2005) ... Other approaches to target setting, eg to differentiate between countries depending on their emission intensity (per capita or per GDP), depart from the objective of an efficiency outcome and would not be the first best solutions" (FCCC/AGBM/1996/MISC.1/Add.1, pp. 14-16 - New Zealand).

Annex II

TABLES OF ANNEX I PARTIES FOR WHICH DATA WERE AVAILABLE FROM NATIONAL COMMUNICATIONS, THEIR GREENHOUSE GAS EMISSIONS, AND CO_2 EMISSIONS, BY SEVERAL INDICATORS FOR 1990[a]

GHG emissions per Party[b]		CO_2 emissions per Party	
United States of America	5 842 371	United States of America	4 957 022
Russian Federation	3 078 892	Russian Federation	2 388 720
Germany	1 241 509	Japan	1 155 000
Japan	1 206 523	Germany	1 014 155
United Kingdom	724 754	United Kingdom	577 012
Poland	614 300	Canada	462 643
Canada	577 954	Italy	428 941
Italy	563 117	Poland	414 930
France	494 032	France	366 536
Australia	465 305	Australia	288 965
Spain	310 070	Spain	227 322
Romania	253 152	Romania	171 103
Netherlands	213 946	Netherlands	167 600
Czech Republic	196 551	Czech Republic	165 792
Bulgaria	123 755	Bulgaria	82 990
Greece	94 888	Greece	82 100
Hungary	88 674	Hungary	71 673
New Zealand	80 266	Sweden	61 256
Sweden	75 573	Austria	59 200
Austria	75 286	Slovakia	58 278
Slovakia	71 900	Finland	53 900
Finland	67 114	Denmark	52 025
Denmark	65 517	Switzerland	45 070
Ireland	63 757	Portugal	42 148
Switzerland	58 196	Estonia	37 797
Norway	52 235	Norway	35 514
Portugal	51 045	Ireland	30 719
Estonia	46 479	New Zealand	25 476
Latvia	27 640	Latvia	22 976
Luxembourg	12 123	Luxembourg	11 343
Iceland	3 227	Iceland	2 172

[a] Includes only Annex I Parties which have submitted national communications. All data are for 1990, unless otherwise noted. All emissions are given in tonnes of CO2 or CO2 equivalent, calculated using the IPCC 1994 global warming potentials, 100-year time-horizon.

[b] Emissions figures based on information provided in national communications or information presented to the UNFCCC secretariat in the course of in-depth reviews.

GHG emissions per capita[c]		CO_2 emissions per capita	
Luxembourg	32.50	Luxembourg	30.41
Estonia	29.59	Estonia	24.06
Australia	27.23	United States of America	19.83
New Zealand	23.99	Canada	17.44
United States of America	23.37	Australia	16.91
Canada	21.79	Russian Federation	16.11
Russian Federation	20.77	Czech Republic	16.00
Czech Republic[d]	18.97	Germany	12.76
Ireland	18.20	Netherlands	11.22
Poland	16.09	Slovakia	11.00
Germany	15.62	Poland	10.87
Netherlands	14.32	Finland	10.81
Bulgaria	13.73	Denmark	10.12
Slovakia[e]	13.57	United Kingdom	10.08
Finland	13.46	Japan	9.35
Denmark	12.75	Bulgaria	9.21
United Kingdom	12.66	Ireland	8.77
Iceland	12.66	Latvia	8.56
Norway	12.31	Iceland	8.52
Romania	10.91	Norway	8.37
Latvia	10.30	Greece	8.17
Italy	9.87	Austria	7.68
Japan	9.77	New Zealand	7.61
Austria	9.76	Italy	7.52
Greece	9.44	Romania	7.38
Sweden	8.83	Sweden	7.16
France	8.75	Hungary	6.79
Switzerland	8.67	Switzerland	6.71
Hungary	8.40	France	6.49
Spain	7.96	Spain	5.83
Portugal	4.85	Portugal	4.00

[c] Population figures from *Statistical Yearbook, 38th Issue*, United Nations, New York, 1993.

[d] Population figure from the national communication.

[e] Population figure from the national communication; figure for 1992.

GHG emissions/$1,000 GDP[1]		CO_2 emissions/$1,000 GDP	
Poland	10.42	Poland	703.56
Romania	6.62	Czech Republic	524.67
Czech Republic	6.22	Estonia	504.63
Estonia	6.21	Romania	447.40
Bulgaria	5.97	Slovakia	406.94
Russian Federation	5.06	Bulgaria	400.41
Slovakia	5.02	Russian Federation	392.80
Hungary	2.68	Hungary	216.83
Latvia	2.30	Latvia	191.34
New Zealand	1.84	Luxembourg	109.59
Australia	1.58	Greece	100.32
Ireland	1.42	Australia	98.11
Luxembourg	1.17	United States of America	90.30
Greece	1.16	Canada	81.44
United States of America	1.06	Ireland	68.55
Canada	1.02	Portugal	62.68
Portugal	0.76	Germany	61.84
Germany	0.76	United Kingdom	59.15
Netherlands	0.75	Netherlands	59.08
United Kingdom	0.74	New Zealand	58.53
Spain	0.63	Spain	46.21
Iceland	0.52	Denmark	40.29
Italy	0.51	Finland	39.98
Denmark	0.51	Japan	39.39
Finland	0.50	Italy	39.17
Austria	0.48	Austria	37.37
Norway	0.45	Iceland	34.79
France	0.41	Norway	30.79
Japan	0.41	France	30.66
Sweden	0.33	Sweden	26.66
Switzerland	0.26	Switzerland	19.94

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[1] GDP figures provided by the Central Statistical Unit, United Nations Conference on Trade and Development.